

# **EXECUTIVE SUMMARY**

## **ES.1 INTRODUCTION**

### **ES.1.1 ENVIRONMENTAL IMPACT STATEMENT**

The Federal Aviation Administration (FAA) has prepared this Environmental Impact Statement (EIS) to analyze and disclose the potential environmental impacts resulting from the proposed implementation of a Federal action at the Fort Lauderdale-Hollywood International Airport (FLL). A summary of the potential impacts of all alternatives assessed in this EIS is presented in **Table ES-1, Summary of Alternatives Including Potential Environmental Impacts and Benefit** (located at the end of this chapter). The information contained in this EIS will be taken into consideration by the FAA in determining the agency's decision regarding the proposed Federal action.

This EIS is comprised of ten volumes, containing the main document chapters (Chapters One through Nine) and Appendices A through S.

**Chapter One - History, Background, and Public Involvement** - describes the history of the project and summarizes planning and environmental studies conducted by the Airport Sponsor and the FAA.

**Chapter Two - The Proposal** - describes the Airport Sponsor's Proposed Project and connected actions; and lists the permits, approvals, and Federal actions required to complete the project, as proposed.

**Chapter Three - Purpose and Need** - describes the problem to be addressed, how the alternatives would resolve the problem, the underlying purpose and need for the action, the desires or preferences of the Airport Sponsor, and the parameters used to define a reasonable range of alternatives.

**Chapter Four - Alternatives** - describes the range of alternatives reviewed to address the previously identified purpose and need, the process used to screen and evaluate reasonable alternatives, and the alternatives carried forward for detailed environmental evaluation.

**Chapter Five - Affected Environment** - describes the existing conditions within the Study Area and establishes the 2005 baseline condition.

**Chapter Six - Environmental Consequences** - describes the analytical processes used and the potential impacts that would result from implementation of the reasonable alternatives in project years 2012 and 2020.

**Chapter Seven - Cumulative Impacts** - describes the potential combined impacts of a proposed action at FLL when added to the impacts of past, present, and reasonably foreseeable future projects in the vicinity of FLL through the year 2020.

**Chapter Eight - FAA's Preferred Alternative** - identifies the agency's "preferred alternative" which is the "alternative the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors." In selecting a preferred alternative, the FAA considered the factors disclosed in this EIS in the context and scope of implementing Federal transportation policies within the framework of the agency's statutory authorities and responsibilities.

**Chapter Nine - List of Preparers and List of Agencies and Persons to Whom Copies are Sent** - lists the people who contributed to the preparation of this EIS and the agency and public distribution list.

The following appendices contain detailed information used in the development of the EIS for the subject area noted in the Appendix title:

- Appendix A - Agency Streamlining
- Appendix B - Public Involvement
- Appendix C - FAA/Airport Sponsor's Correspondence
- Appendix D - Purpose and Need
- Appendix E - Airfield Planning, Design, & Constructability Review
- Appendix F - Net Benefits Analysis
- Appendix G - Air Quality
- Appendix H - Noise
- Appendix I - Interlocal Agreements and Development Orders
- Appendix J - Land Use GIS Methodology
- Appendix K - Public Resources
- Appendix L - Water Resources
- Appendix M - Biological and Natural Resources
- Appendix N - Hazardous and Waste Materials
- Appendix O - Surface Transportation and Natural Resources and Energy
- Appendix P - Response to Comments
- Appendix Q - FAA's Preferred Alternative
- Appendix R - Response to Comments Received After the Close of the Comment Period
- Appendix S - Additional Analysis

### **ES.1.2 THE ROLE OF THE FEDERAL AVIATION ADMINISTRATION**

As the lead Federal agency, the FAA is responsible for the preparation and content of this EIS which evaluates the potential environmental impacts of the proposed runway redevelopment project at FLL. The FAA has prepared this EIS in compliance with the requirements of the *National Environmental Policy Act (NEPA)*, of 1969

(P.L. 91-190); the Council on Environmental Quality's (CEQ) regulations implementing NEPA (40 CFR Parts 1500 through 1508); FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*; and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*.

The FAA selected a third party contractor to assist in the preparation of this document, which includes the FAA's independent evaluation of information submitted by the Airport Sponsor (i.e., the Broward County Board of County Commissioners [the Commission]) and other entities that were coordinated with during the environmental process described in this EIS.

### **ES.1.3 THE PROPOSAL**

The Commission proposed improvements at FLL to address existing and anticipated future airfield capacity and delay issues. Since the commencement of commercial service in 1953, FLL has become one of the fastest growing airports in the U.S., accommodating over 22 million passengers in 2007. FLL was ranked as one of the 35 busiest airports in the U.S. in 2007.<sup>1</sup>

FLL plays a major role in the economic viability of the region by providing access to tourist destinations and businesses along Florida's southeastern coast. As of 2008, FLL is served by more than 50 air carrier, commuter, air cargo, and charter airline companies that provide flights to more than 60 U.S. and 40 international destinations. To continue its role in the region, the Commission has proposed redevelopment of the airfield to address capacity needs and reduce operational delays. These improvements would address the continued growth at FLL forecast to occur by planning horizons 2012 and 2020.<sup>2</sup>

#### **ES.1.3.1 The Airport Sponsor's Proposed Project and Connected Actions**

The Airport Sponsor's Proposed Project includes the following elements:

- Expand and elevate Runway 9R/27L to an overall length of 8,000 feet and width of 150 feet.
- Construct a new full-length parallel taxiway 75 feet wide on the north side of Runway 9R/27L with separation of 400 feet from 9R/27L.
- Construct an outer dual parallel taxiway that would be separated from the proposed north side parallel taxiway by 276 feet.
- Construct connecting taxiways from the proposed full-length parallel taxiway to existing taxiways.

<sup>1</sup> Airport Consultants International-North America (ACI-NA), *North American Airports, 2007 Final, Total Movements*, Web accessed 06/03/2008: [http://www.aci-na.org/stats/stats\\_traffic](http://www.aci-na.org/stats/stats_traffic)

<sup>2</sup> Annual aircraft operations at FLL grew from 287,094 in 2000 to 336,111 in 2005; with continued growth forecast to occur by 2012 (341,877 operations) through 2020 (408,536 operations). See Appendix D.1, *Aviation Activity Forecasts and Derivative Design Day Forecasts*.

- Construct an Instrument Landing System (ILS) for landings on Runways 9R and 27L. Runway ends 9R and 27L would have a Category I ILS, which includes a Medium Intensity Approach Light System with runway alignment indicator lights (MALSR), localizer, and glideslope antennae.
- Decommission Runway 13/31.
- Redevelopment of terminal gates.

And would require the following connected actions:

- Close Airport Perimeter Road located within the approach to Runway 9R.
- Relocate ASR-9.
- Acquire all, or a portion of the Hilton (formerly Wyndham) Fort Lauderdale Airport Hotel located at 1870 Griffin Road Fort Lauderdale, Florida, to the extent a portion of the existing structure would be located within the Proposed Runway Protection Zone (RPZ) for extended Runway 9R/27L.
- Acquire all, or a portion, of the Dania Boat Sales located at 1880 Griffin Road, Fort Lauderdale, Florida, to the extent, a portion of the existing structures would be located within the Proposed Runway Protection Zone (RPZ) for extended Runway 9R/27L.

#### **ES.1.3.2 Refinement of the Airport Sponsor's Proposed Project**

The Airport Sponsor's Proposed Project evolved over time through interaction between the FAA and Broward County. Planning studies conducted by Broward County, discussions with FAA, and Commission actions were used to define the Airport Sponsor's Proposed Project and to identify the connected actions to be analyzed in this EIS.

#### **ES.1.4 ENVIRONMENTAL REVIEW PROCESS**

FAA's environmental review responsibilities include compliance with NEPA, disclosure of environmental impacts, identification of a reasonable range of alternatives, and review and approval of Federal actions pertaining to airports and their operations. The FAA is required under NEPA to identify possible conflicts between the proposed action and the objectives of Federal; regional; state; tribal; and local land use plans, policies, and controls for the area concerned. The FAA is charged with identifying the extent to which it would reconcile the proposed action with plan or law.

The reasonable alternatives considered are described within this EIS along with those alternatives eliminated from further consideration. NEPA requires identification of the methodologies and sources used; determinations of where information is incomplete or unavailable; lists of the document preparers, resource agencies, organizations, and persons to whom copies of this EIS are sent; and summaries of the major conclusions and areas of controversy encountered through coordination with agencies and review by the public.

As part of the environmental process, Federal, state, and local governmental agencies, as well as the public, were afforded opportunities to be briefed on the Airport Sponsor's Proposed Project and the runway development alternatives carried forward for detailed evaluation in this EIS. The FAA conducted scoping activities with agencies and the public in early 2005 to determine the range of issues to be analyzed in the EIS. A public information workshop was held on February 2, 2006 to provide an update on the status of the EIS process and to receive public comments. (See Appendix B.1, *Scoping*, and Appendix B.3, *Interim Public Workshop*.)

As part of the public information process, a series of Project Focus Group meetings were held at key milestones throughout the conduct of the EIS. The Project Focus Groups were specifically designed as small gatherings of the public who represented their community or homeowner association's concerns from neighborhoods surrounding the airport. The Project Focus Groups included the five communities located in the Study Area: Fort Lauderdale, Plantation, Hollywood, Davie, and Dania Beach. (See Appendix B.2, *Focus Group Meetings*.)

Following the publication of the Draft EIS and prior to the EIS public hearing, the FAA conducted three District-wide Meetings at the request of the Broward County Board of County Commissioners. These meetings consisted of a presentation of the contents of the Draft EIS followed by a question and answer period. On May 1, 2007, a public information workshop and public hearing were held at the Fort Lauderdale Hollywood Convention Center. Notices of the public information workshop and public hearing were published in the Sun Sentinel on April 15, 22, and 29; Broward Herald on April 15, 22, and 29; and the El Heraldo on April 16. Over 600 people attended the FAA public information workshop and the FAA public hearing. (See Appendix B.5, *FAA Public Hearing/Workshop*.)

Comments on the Draft EIS were accepted by the FAA until the close of the official comment period on May 21, 2007, a period of 53 days from the publication of the Federal Register Notice of Availability of the Draft EIS. During that period, a total of 768 written and oral comments were received. All comments and responses received by the close of the official comment period are included in Appendix P, *Response to Comments*.

The FAA received numerous comments on the information contained in the March 2007 Draft EIS document after the official comment period closed on May 21, 2007. The FAA has reviewed those comments to determine if any significant or substantial issues were raised regarding analysis or information contained in the Draft EIS that had not previously been submitted and considered. The issues raised in those comments are addressed in the response to comments provided in Appendix R, *Response to Comments Received After the Close of the Draft EIS Comment Period*.

All comments received on the Draft EIS, including those received after the close of the official comment period, are included in the FAA's Administrative Record. No significant or substantial issues were identified in any of the comments received on the Draft EIS document.

With the publication of the final EIS, there will be a 30-day agency and public comment period. Comments received on the contents of the final EIS will be considered by the FAA and responses will be prepared and published in a Record of Decision.

### **ES.1.5 LIST OF FEDERAL, STATE, AND LOCAL PERMITS AND APPROVALS**

The following actions are required by Federal agencies (other than the FAA) and state and local agencies for implementation of the Airport Sponsor's Proposed Project:

- Issuance of a Clean Water Act Section 404 permit by the U.S. Army Corps of Engineers (USACE) related to potential impacts to jurisdictional streams and wetlands.
- Review and comment to the USACE of Section 404 Dredge and Fill Permit application by the U.S. Environmental Protection Agency (USEPA), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and the Florida State Historic Preservation Office (SHPO).
- Section 401 Water Quality Certification from the South Florida Water Management District (SFWMD).
- Modification to the National Pollutant Discharge Elimination System (NPDES) permit (Section 402 of the Clean Water Act) for proposed construction activities; this would be coordinated through the SFWMD.
- Modification to the SFWMD Environmental Resource Permit (ERP) No. 06-00339-S for impacts to jurisdictional wetlands.

### **ES.1.6 PROPOSED FEDERAL ACTIONS**

The Federal actions, determinations, and approvals by the FAA would be required for completion of the Airport Sponsor's Proposed Project.

#### **ES.1.6.1 Determination of Project Eligibility for Federal Funding Approval**

The FAA would have to make an official determination of whether the following elements of the proposed action would be eligible for Federal funds:

- Engineering and design
- Site preparation
- Airfield construction of runway, taxiway, runway safety area, and other airfield facilities
- Development of terminal gates
- Environmental mitigation requirements (if any)
- Navigational aids

Potential Federal funds for these project elements include Grant-in-Aid Funds through the Federal Airport Improvement Program (AIP).

**ES.1.6.2 Determination of Project Eligibility to Impose and Use Passenger Facility Charges (PFCs)**

The FAA would have to make an official determination of whether elements of the proposed action would be eligible for PFC funding.

**ES.1.6.3 FAA Approval and Funding of Proposed Airport Development**

The FAA's determination of the proposed action's eligibility for Federal funding would involve the approval of an ALP,<sup>3</sup> environmental approval in accordance with NEPA and FAA environmental requirements,<sup>4</sup> and determinations under other executive orders and statutes discussed in this EIS.

**ES.1.6.4 FAA Installation and/or Relocation of Navigational Aids Associated With the Proposed New Runway**

The FAA would make a determination regarding the installation and/or relocation of navigational aids associated with the new runway.<sup>5</sup>

**ES.1.6.5 FAA Approval of Air Traffic Procedures for the Runway**

The FAA would amend the existing and/or develop new air traffic procedures for FLL to include an expanded runway and the closure of Runway 13/31. The FAA would have to approve the amended and/or new procedures, verify them through flight testing, and publish the procedures for general use.<sup>6</sup>

**ES.1.6.6 Determination of Obstructions to Navigable Airspace**

An aeronautical study to review and approve navigable airspace for the proposed runway under FAR 14 CFR Part 77, *Objects Affecting Navigable Airspace*.<sup>7</sup>

**ES.16.7 FAA Approval of Airspace**

FAA approval of the airspace associated with the proposed actions, based on an aeronautical study conducted under FAR 14 CFR Part 157, *Notice of Construction, Alternation, Activation, and Deactivation of Airports*, would be necessary before the proposed expanded runway could be opened for use and Runway 13/31 could be decommissioned (deactivated).

**ES.1.6.8 FAA Certification and Other Approvals**

FAA modification or amendment of existing certificates or specifications would be required to meet the Commission's objective of providing an airport that will comply with FAA design standards and accommodate, in a safe and efficient manner, the passenger enplanements and aircraft activity forecasts.

<sup>3</sup> 49 U.S.C. § 47107(a)(16)

<sup>4</sup> 49 U.S.C. § 47106(c)

<sup>5</sup> 49 U.S.C. § 40103

<sup>6</sup> 49 U.S.C. § 40103

<sup>7</sup> 49 U.S.C. § 40103(b) and 40113

- Certification under FAR 14 CFR Part 139, *Certification of Airports*.
- Operating Specifications for scheduled air carriers intending to operate at the airport in the future under FAR 14 CFR Part 121, *Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operations of Large Aircraft*.

#### **ES.1.6.9 Applicable Environmental Laws, Regulations, Statutes, and Policies**

This EIS addresses the airport development actions listed in Section ES.1.6.1 through Section ES.1.6.8 of this chapter for which the Airport Sponsor will seek Federal financial aid under the AIP. The information contained in this EIS will provide evidence to satisfy agency determinations and sponsor certifications under 49 USC 47106 and 47107.

The approving FAA official will include the following determinations and sponsor certifications in its Record of Decision.

- FAA determination of conformity under the Clean Air Act, 42 U.S.C. 7506(c)(1).
- FAA determination that the Proposed Action nor its alternatives will involve or affect coastal resources. Coastal Barrier Resources Act, 16 U.S.C. 3501-3510, Coastal Zone Management Act, 16 U.S.C. 1451-1464, and Executive Order 13089, Coral Reef Protection.
- FAA determination of consistency with existing plans of public agencies for the development of the area surrounding the airport. Airport Development Grant Program, 49 U.S.C. 47106(a)(1).
- FAA determination that fair consideration has been given to the interests of communities in or near the project location. Airport Development Grant Program, 49 U.S.C. 47106(b)(2).
- FAA determinations under 49 U.S.C. 303(c) with respect to use of any publicly-owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance; or land from an historic site of national, State, or local significance.
- FAA findings regarding to the potential impact to endangered or threatened species, marine mammals, essential fish habitat and migratory birds. Endangered Species Act, 16 U.S.C. 1531-1544. Marine Mammal Protection Act, 16 U.S.C. 1361-1421h. Sustainable Fisheries Act, 16 U.S.C. 1855(b)(2). Migratory Bird Treaty Act, 16 U.S.C. 703-712.
- FAA floodplain determination and findings in accordance with Executive Order 11998, Floodplain Management. The environmental decision made by the FAA must also include floodplain findings in accordance with DOT Order 5650.2, Floodplain Management and Protection.

- FAA determination in accordance with Section 106 of the National Historic Preservation Act of 1966. The FAA is required to make a determination related to the possible effect of the proposed actions on properties either listed or eligible to be listed on the National Register of Historic Places that are in the vicinity of the development of the proposed actions. National Historic Preservation Act, 16 U.S.C. 470(f).
- FAA determination regarding coordination and consultation with Native American representatives in accordance with DOT Order 5301.1, Department of Transportation Programs, Policies, and Procedures Affecting American Indians, Alaska Natives, and Tribes; and FAA Order 1210.20, American Indian and Alaskan Native Tribal Consultation Policy and Procedures.
- FAA determination regarding environmental justice in accordance with Executive Order 12898 and DOT Order 5610.2, Environmental Justice.
- FAA determination that appropriate water quality requirements will be satisfied in accordance with the Clean Water Act. Clean Water Act, 33 U.S.C. §§1251, et seq.
- Determination by the FAA in accordance with Executive Order 11990, Protection of Wetlands. Any impact to wetlands would necessitate a wetlands determination by the FAA in accordance with the above-mentioned Executive Order and Department of Transportation (DOT) Order 5660.1A, Preservation of the Nation's Wetlands, and Section 404 of the Clean Water Act. 33 U.S.C. 1344.

## **ES.2 ROLE OF FLL IN THE NATIONAL AIRSPACE SYSTEM**

FLL is a primary airport, identified in the National Plan of Integrated Airport Systems (NPIAS) as one of the more than 3,000 airports identified as significant to national air transportation and, therefore, eligible to receive grants under the FAA Airport Improvement Program (AIP). In 2004, the FAA published three reports that identified FLL as one of the busiest airports in the U.S. The FAA's *Capacity Needs in the National Airspace System 2007-2025* identified that FLL needed additional capacity within the 2007 timeframe.<sup>8</sup> In one of those reports, the 2006 FAA Terminal Area Forecast (TAF) shows that the existing shortage of capacity at FLL will become exacerbated in the future.

Congress stressed the importance of airports to the economy and the priority of capacity projects to ease congestion in *Vision 100 Century of Aviation Reauthorization Act Public Law 108-176*. As part of its overall air commerce missions, FAA encourages construction of capacity projects at congested airports, but qualifies this with the need to assess environmental impacts associated with these projects.

<sup>8</sup> *Capacity Needs in the National Airspace System 2007-2025, An Analysis of Airport and Metropolitan Demands and Operational Capacity in the Future*. Federal Aviation Administration. May 2007.

At FLL, annual aircraft operations are projected to increase by 2.2 percent annually from 2006 to 2012 and by 2.3 percent annually from 2012 to 2020. With increased demand in 2012 and 2020, average delays at FLL are estimated to increase from six minutes in 2005 to approximately 26 minutes per operation in 2012/2020. The delay threshold used in this EIS for establishing the capacity of FLL is six minutes per operation. FAA has determined that the capacity of FLL under current conditions is calculated to be 310,000 annual operations at six minutes of annual average delay per operation.

To maintain average delays at the six minutes per operation threshold, there is a need to increase airfield operations from 84 operations an hour in 2005 to a range of 101 to 107 operations per hour. To provide the required capacity to maintain this level of delay, additional airfield capacity in the form of longer or additional runways and supporting taxiways and infrastructure is required.

By exploring the capacity and demand issues at FLL, the FAA would fulfill its statutory responsibilities to administer the National Airspace System. The next step is to develop and evaluate a range of alternatives, including the Airport Sponsor's Proposed Project, which would resolve the delay and capacity deficiencies at FLL.

### **ES.3 PURPOSE AND NEED**

#### **ES.3.1 AIRPORT SPONSOR'S IDENTIFIED GOALS AND OBJECTIVES**

On October 26, 2004, the Broward County Commission adopted the following "County's Airfield Development Program Objective Statement" for the FAA's consideration in developing its Federal purpose and need:

"The purpose of the proposed airfield improvements is to simultaneously achieve the following to the maximum extent practical:

- enhance FLL's capacity to accommodate forecast traffic through the year 2020 in a manner that will maintain average annual aircraft delay at or below the 6 to 10 minute average annual delay range,
- decommission the use of Runway 13/31 (crosswind); and,
- in the interim, avoid using Runway 13/31 to address forecast increases in aircraft delays given Runway 13/31's operational inefficiencies and the higher levels of residential noise exposure associated with its use,
- mitigate noise exposure attributable to proposed improvements by implementing a runway use plan and residential noise mitigation processes contained in approved Interlocal agreements and development orders with and from nearby cities in an environmentally sensitive manner while preserving the airport's vital economic role, and

- implement residential noise mitigation initiatives in areas not currently eligible under the Airport Improvement Program to deal with the overall forecast growth in aircraft operations, including implementing mitigation in advance of the onset of noise exposure in residential areas forecast to be newly exposed to the highest levels of cumulative aircraft noise resulting from changes in the configuration of the airport, while preserving neighborhoods and providing affordable housing."

### **ES.3.2 FEDERAL NEED AND PURPOSE**

#### **ES.3.2.1 Need for the Project**

The FAA considered the deficiencies at FLL and their impact on the FAA's purpose of enhancing safety, efficiency, and capacity on both the regional and national level, and has identified the following needs at FLL:

- The need for sufficient airfield capacity, to the extent practicable, to accommodate existing and projected air carrier demand at a level of delay established for FLL in this EIS analysis;
- The need for an enhanced and balanced airfield; and
- The need for sufficient gate and apron capacity to address existing and forecast passenger demand and aircraft congestion on the ramp.

In order for an alternative to be considered viable and carried forward for detailed evaluation within the NEPA process and this EIS, it must address one or more of these needs, as described more fully in the following sections.

#### **ES.3.2.2 Purpose of the Proposal**

Under 49 USC 47101(a)(7), the FAA is charged with ensuring "that airport construction and improvement projects that increase the capacity of facilities to accommodate passenger and cargo traffic be undertaken to the maximum feasible extent so that safety and efficiency increase and delays decrease." The NPIAS supports the FAA goals identified in the *Flight Plan (2004-2008)*<sup>9</sup> for safety and capacity by identifying the specific airport improvements that will contribute to achievement of those goals.

To highlight the emphasis on enhancing capacity within the national airspace, Congress stresses the importance of airports to the economy and the priority of capacity projects to ease congestion in *Vision 100 Century of Aviation Reauthorization Act Public Law 108-176*. Congress directs the FAA as part of its overall air commerce missions, to encourage construction of capacity projects at congested airports, but qualifies this with the need to assess environmental impacts associated with these projects.

<sup>9</sup> Federal Aviation Administration Flight Plan 2004-2008. Internet web site: [http://www.faa.gov/apo/strategicplan/FAA\\_Flight\\_Plan.pdf](http://www.faa.gov/apo/strategicplan/FAA_Flight_Plan.pdf)

The FAA's *Capacity Needs in the National Airspace System 2007-2025* identified that FLL needed additional capacity within the 2007 timeframe.<sup>10</sup> The 2006 FAA Terminal Area Forecast (TAF) shows that the existing shortage of capacity at FLL will become exacerbated in the future. Because of the existing and future capacity and demand requirements at FLL, this EIS is also subject to the environmental streamlining provisions of the Vision 100 Act.<sup>11</sup>

## **ES.4 ALTERNATIVES**

Federal guidelines concerning the environmental review process require that all reasonable, feasible, prudent, and practicable alternatives that might accomplish the objectives of a proposed project be identified and evaluated. Therefore, in compliance with NEPA and other special purpose environmental laws, the FAA independently reviews and analyzes those alternatives that could achieve the established purposes and need for the project.

Reasonable alternatives include those that are practicable or feasible from the technical and economic standpoint. As the lead agency, FAA has a responsibility to explore and objectively evaluate all prudent, feasible, reasonable, and practicable alternatives, including those beyond the agency's jurisdiction. In deciding which alternatives to consider, agencies must look hard at the factors relevant to the definition of purpose for the action. When an agency is asked to sanction a specific plan, it should take into account the needs and goals of the parties involved in the application. More importantly, the agency should always consider the views of Congress, expressed in the agency's statutory authorization to act, as well as in other pertinent congressional directives.

### **ES.4.1 RANGE OF ALTERNATIVES**

The FAA considered seven categories of off-site and on-site alternatives in addition to a no action alternative.

#### **ES.4.1.1 No Action Alternative**

As a requirement of NEPA, a No Action Alternative must be carried forward in the assessment of environmental impacts. To satisfy the intent of NEPA, FAA Orders, and other special purpose environmental laws, the No Action Alternative is carried forward in the analysis of environmental consequences. With the No Action Alternative, the airfield would remain as it is today, with no additional runways or extensions or improvements to any existing runways, and no new air traffic actions. The No Action Alternative is a potential alternative under NEPA and serves as the baseline for the assessment of future conditions/impacts.

<sup>10</sup> *Capacity Needs in the National Airspace System 2007-2025, An Analysis of Airport and Metropolitan Demands and Operational Capacity in the Future*. Federal Aviation Administration, May 2007.

<sup>11</sup> *Vision 100 Century of Aviation Reauthorization Act*, Public Law 108-176

### **ES.4.1.2 Off-Site Alternatives**

#### **ES.4.1.2.1 Category 1 - Use of Other Airports/Regional Management Alternatives**

These alternatives would entail the transfer of aircraft operations from FLL to other airports within the region, thereby reducing the operational demand and need for additional capacity at FLL to accommodate existing and projected future aviation demand. Shifting operations to Palm Beach International Airport (PBI), Miami International Airport (MIA), Homestead Air Reserve Base (HST), Dade-Collier Training and Transition Airport (Everglades Airport) (TNT), was considered along with shifting general aviation traffic to surrounding reliever airports. Due to the lack of overlapping market areas with PBI, the inability of the U.S. Department of Transportation to force airlines to relocate operations to MIA, the previous Federal decision not to use HST as a public airport, the future role of TNT as a limited training facility, and the lack of capacity benefit gained by shifting general aviation operations to surrounding reliever airports; these alternatives were not considered reasonable and were eliminated from further consideration.

#### **ES.4.1.2.2 Category 2 - Development of a New Off-Site Airport to Replace FLL**

This alternative included development and construction of a new airport at a new location to replace FLL. Due to the limited availability and cost of suitable land, the potential significant environmental impacts that could occur at a new location, the improbability of public acceptance, and the significant (and, as of yet, unfunded) capital investment necessary for development and construction of such an airport; this alternative was not considered reasonable and was eliminated from further consideration.

#### **ES.4.1.2.3 Category 3 - Other Modes of Transportation and/or Telecommunications**

These alternatives entail the use of other modes of transportation or communication technology (e.g., trucks, trains, rail, and telecommunications/video-conferencing), which could be used to reduce operational demand at FLL and reduce the need for additional capacity. While the use of other surface roadway transportation modes is feasible for some types of passenger travel and cargo delivery, it is not considered a reasonable alternative to meet the immediate demand and need for capacity at FLL. Although high-speed rail may be potentially feasible at some undeterminable point in the future, public support for this type of public transportation service in Florida no longer exists. Telecommunication technology does not replace the need for air travel. Therefore, this group of alternatives was not considered reasonable and was eliminated from further consideration.

### **ES.4.1.3 On-Site Alternatives**

#### **ES.4.1.3.1 Category 4 - Non-Runway Development Alternatives**

These alternatives are designed to meet the need for additional capacity through physical airfield enhancements other than the redevelopment runway(s) that would satisfy all, or a portion of, the established purpose and need. Among the projects considered are the construction, extension, and/or expansion of taxiways, runway exits, and hold pads. These non-runway development projects, while adding taxiway flexibility and reducing ground delays, would not provide the airfield capacity necessary to accommodate future aviation demand levels. These alternatives were not considered reasonable and were eliminated from further consideration.

#### **ES.4.1.3.2 Category 5 - Other Technologies**

Other technologies and resources could increase capacity during low visibility conditions, enhance safety, and increase accuracy of takeoffs and landings, and could potentially increase the ability of the airspace to deliver more air traffic to FLL. None of these technologies would increase airfield capacity. These alternatives were not considered reasonable and were eliminated from further consideration.

#### **ES.4.1.3.3 Category 6 - Activity or Demand-Management Alternatives**

Activity or demand-management alternatives would not provide the airfield capacity necessary to accommodate existing and future aviation demand levels. These alternatives were not considered reasonable and were eliminated from further consideration.

#### **ES.4.1.3.4 Category 7 - Runway Development Alternatives**

Eighteen runway development alternatives were initially identified for evaluation. For the purposes of evaluation, the alternatives were grouped into the following categories by "like" design attributes (the **A Alternative** is identified as the No Action Alternative in this EIS):

**B Alternatives – South Airfield Development:** Seven alternatives were identified to redevelop existing Runway 9R/27L. Alternatives B1 and B5 would require permanent decommissioning of Runway 13/31, while it could remain operational under Alternatives B2, B3, B4, B6, and B7. Alternatives B1, B2, B3, and B6 would redevelop Runway 9R/27L along its existing alignment. Alternatives B4 and B7 would reconstruct Runway 9R/27L approximately 340 feet north of its existing alignment; and Alternative B5 would reconstruct Runway 9R/27L approximately 320 feet to the south of its current alignment.

**C Alternatives – North Airfield Development:** Three alternatives were identified for a new closely-spaced parallel runway, Runway 8/26, on the north airfield, north of existing Runway 9L/27R. Runway 13/31 would be permanently decommissioned to facilitate operation of an airfield with three east/west parallel runways. All of the C Alternatives maintain operations on existing Runway 9R/27L.

**D Alternatives – South and North Airfield Development:** Two 'D' Alternatives were developed by combining elements of the 'B' and 'C' Alternatives. These alternatives include redevelopment of Runway 9R/27L on the south airfield and construction of a new closely-spaced parallel Runway 8/26, on the north airfield, north of existing Runway 9L/27R.

**E Alternatives – Crosswind Runway or Open-V Configuration:** Six alternatives were identified to address development of the crosswind runway or the airfield with an open-V configuration.

#### **ES.4.2 RUNWAY DEVELOPMENT ALTERNATIVES SCREENING RESULTS**

To determine if these alternatives could substantially meet the stated purpose and need to increase capacity and reduce delay, these alternatives were further screened on runway length, airfield throughput capacity, constructability, and consideration of a series of "fatal flaws" (i.e., encroachment of Dania Cut-Off Canal, Interstate-95 and/or Seaboard Coast (CSX) Railroad, terminal impacts, or impacts to Florida Power and Light (FPL) substations). Alternatives were then eliminated from further evaluation if they failed to meet one or more of these criteria. (See Chapter Four, Alternatives, Table 4-3, *Initial Screening of Runway Development Alternatives*.)

Although the No Action Alternative (Alternative A) does not provide adequate throughput capacity or runway length, it is identified for further evaluation as required by NEPA. Alternatives B1, B4, B5, C1, D1, and D2 were determined to: (1) have adequate throughput capacity, (2) provide adequate runway length, (3) be practically constructed, and (4) not be fatally flawed.

Variations of Alternative B1 were developed to address specific runway redevelopment and operational issues. Based on a request made by the Commission in January 2006, a variation of Alternative B1 using an Engineered Material Arresting System (EMAS)<sup>12</sup> instead of a standard Runway Safety Area (RSA) on both runway ends was developed. This alternative became Alternative B1b. With EMAS, the overall length of the proposed runway would be reduced to 8,000 feet, eliminating the need for declared distance and improving runway operational capability. In July 2006, Broward County requested that the EIS also evaluate implementation of operational noise abatement actions as described in the *County's Airfield Development Program Objective Statement* (October 26, 2004). Alternative B1c was developed to take into account these operational actions and was identified as the Airport Sponsor's Proposed Project in this EIS.

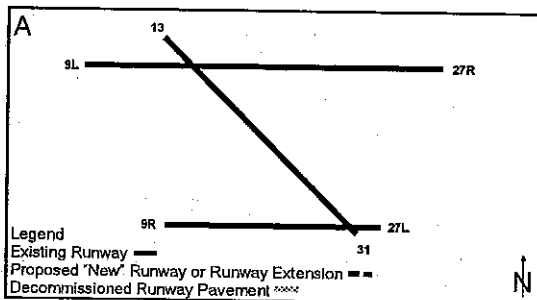
<sup>12</sup> Engineered Material Arresting System (EMAS) is a "soft ground arresting system" consisting of a crushable cellular cement material installed on the runway overrun in a predetermined bed layout. EMAS provides a reliable and predictable capability to stop an aircraft by crushing under the weight of an aircraft providing deceleration and a safe stop. See FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*.

Alternative B1c has the same airfield configuration (with EMAS) as Alternative B1b, but includes implementation of the County's proposed operational noise abatement actions, including the runway use plan. Alternatives B1, B1b, and B1c (Airport Sponsor's Proposed Project) are described in detail in the following section.

The following eight runway development alternatives and the No Action Alternative are carried forward for detailed environmental evaluation in Chapter Six, *Environmental Consequences*.

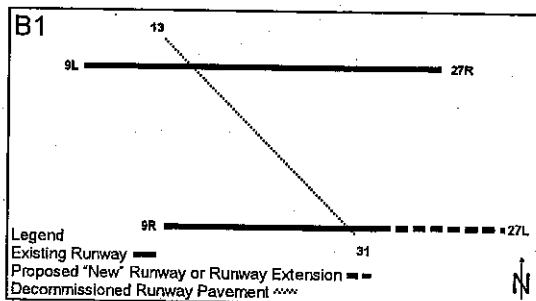
### **ES.4.3 ALTERNATIVES ASSESSED FOR ENVIRONMENTAL IMPACTS**

#### **ES.4.3.1 Alternative A – No Action**



FAA Order 5050.4B<sup>13</sup> requires that the effects of a No Action Alternative be disclosed in the EIS along with the potential environmental impacts of the proposed action and its reasonable alternatives. For this EIS, the No Action Alternative presumes no runway or other major airfield improvements or development projects would occur;<sup>14</sup> and Runway 9R/27L would remain at its existing length of 5,276 feet by 100 feet. See **Exhibit ES-1, Alternative A – No Action**.

#### **ES.4.3.2 Alternative B1 – Redevelop and Extend Existing Runway 9R/27L to an 8,600-Foot by 150-Foot Elevated Runway**

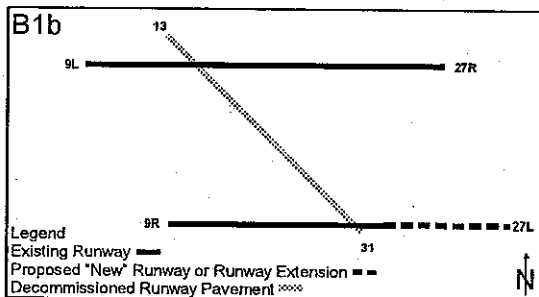


<sup>13</sup> FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, April 28, 2006, Chapter 10, Section 1001. EIS PURPOSE. 40 CFR 1502.1 states the primary purpose of an EIS is to be an "action-forcing tool" to ensure Federal government programs and actions meet NEPA's goals and policies. The EIS allows the agency to take a "hard look" at the environmental impacts of the No Action, the proposed action, and its reasonable alternatives.

<sup>14</sup> Previously approved taxiway and/or apron improvement projects are considered as part of the baseline conditions.

Alternative B1 redevelops and extends existing Runway 9R/27L to the east to achieve a total length of 8,600 feet by 150 feet without encroaching onto NE 7th Avenue. The overall runway length is maximized by extending and elevating the east end of the runway over the FEC Railway and U.S. Highway 1. The western extent of the runway would be the Dania Cut-Off Canal. Runway 13/31 would be permanently closed to accommodate elevation of Runway 9R/27L. See **Exhibit ES-2, Alternative B1 – Redevelop and Extend Existing Runway 9R/27L to an 8,600-Foot by 150-Foot Elevated Runway.**

**ES.4.3.2 Alternative B1b – Redevelop and Extend Existing Runway 9R/27L to an 8,000-Foot by 150-Foot Elevated Runway with EMAS**

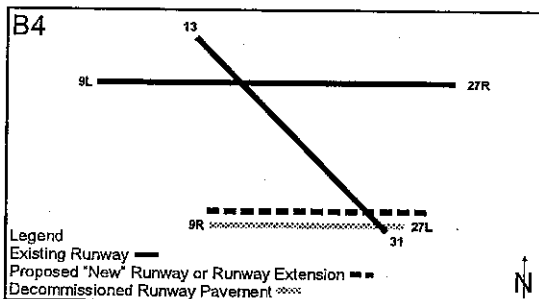


Alternative B1b would redevelop Runway 9R/27L to a length of 8,000 and a width of 150 feet. EMAS would be used at each runway end in place of a standard RSA. The use of EMAS allows the overall length of the runway would be reduced to 8,000 feet and would eliminate the need for declared distance while improving the runway operational capability. The east end of Runway 9R/27L would be elevated over the FEC Railway and U.S. Highway 1. The western extent of the runway would be the Dania Cut-Off Canal. Runway 13/31 would be permanently closed to accommodate elevation of Runway 9R/27L. See **Exhibit ES-3, Alternative B1b/B1c – Redevelop and Extend Existing Runway 9R/27L to an 8,000-Foot by 150-Foot Elevated Runway.**

**ES.4.3.3 Alternative B1c - Redevelop and Extend Existing Runway 9R/27L to an 8,000-Foot by 150-Foot Elevated Runway with EMAS (Airport Sponsor's Proposed Project)**

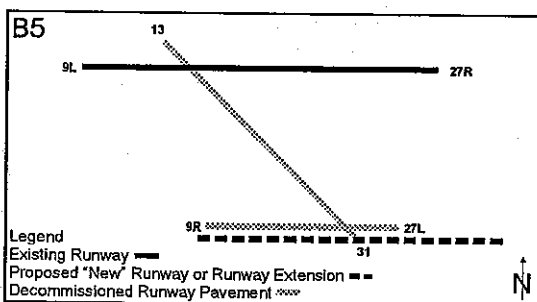
Alternative B1c has the same physical alignment, design conditions, and configuration as Alternative B1b. Alternative B1c includes implementation of the operational noise abatement actions described in the County's *Airfield Development Program Objective Statement* (October 26, 2004). See Exhibit ES-3.

**ES.4.3.4 Alternative B4 – Build a New 6,001-Foot At-Grade Runway with EMAS Located 340 Feet North of Existing South Runway (to Replace Existing Runway 9R/27L)**



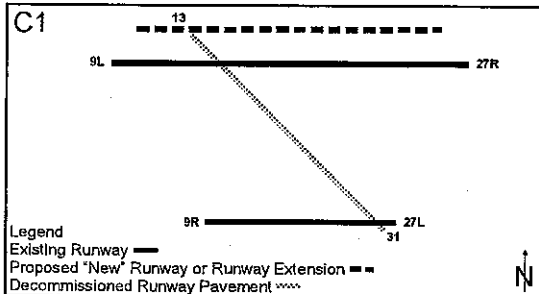
Alternative B4 would shift the location of Runway 9R/27L 340 feet to the north of its current location. Redeveloped Runway 9R/27L would be 6,001 feet long and would use the Dania Cut-Off Canal as the western limit for development. The redevelopment of Runway 9R/27L would require reconfiguration of Terminal 4. EMAS would be used in lieu of standard RSAs at both runway ends. Runway 9R/27L would not extend over the FEC Railway and/or U.S. Highway 1. The alignments of Airport Perimeter Road and the FEC Railway would be shifted to the east to achieve the 6,001-foot minimum runway length. Alternative B4 avoids decommissioning Runway 13/31. See **Exhibit ES-4, Alternative B4 – Build a New 6,001-Foot At-Grade Runway with EMAS Located 340 Feet North of Existing South Runway (to Replace Existing Runway 9R/27L).**

**ES.4.3.5 Alternative B5 – Build A 7,800-Foot Elevated Runway with EMAS Located 320 Feet South Of Existing South Runway (to Replace Existing Runway 9R/27L)**



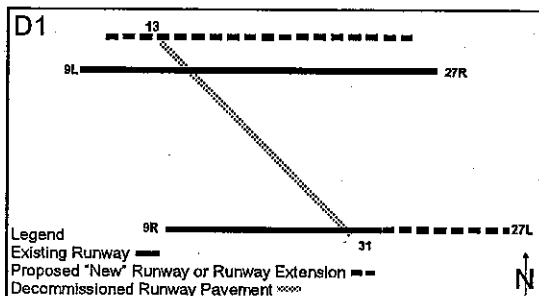
With implementation of Alternative B5, Runway 9R/27L would be shifted 300 feet to the south of its existing alignment and redeveloped at a length of 7,800 feet. Redeveloped Runway 9R/27L would be elevated over the FEC Railway and U.S. Highway 1 and would include EMAS on both runway ends. Due to the elevation of Runway 9R/27L, Runway 13/31 would be decommissioned. The intersection of Griffin Road and U.S. Highway 1 would be relocated approximately 950 feet south of its existing location to accommodate the airfield improvements. See **Exhibit ES-5, Alternative B5 – Build A 7,800-Foot Elevated Runway with EMAS Located 320 Feet South Of Existing South Runway (to Replace Existing Runway 9R/27L).**

**ES.4.3.6 Alternative C1 – Build A 7,721 Foot At-Grade Runway Located 850 Feet North of Existing Runway 9L/27R (A Dependent Parallel Runway to Existing Runway 9L/27R)**



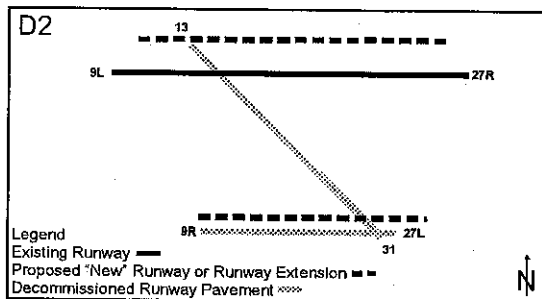
Alternative C1 includes construction of a new closely-spaced parallel runway, Runway 8/26, approximately 850 feet north of existing Runway 9L/27R. Runway 8/26 would be constructed to a length of 7,721 feet and would include standard RSAs on both runway ends. Runway 8/26 would not encroach onto Interstate-95 to the west or the existing FEC Railway to the east. Multiple cargo and general aviation tenants located along the north side of the airfield would be displaced. Runway 13/31 would be permanently decommissioned during the construction of Runway 8/26. See **Exhibit ES-6, Alternative C1 – Build A 7,721 Foot At-Grade Runway Located 850 Feet North of Existing Runway 9L/27R (A Dependent Parallel Runway to Existing Runway 9L/27R)**.

**ES.4.3.7 Alternative D1 – Redevelop and Extend Existing Runway 9R/27L to 8,000 Feet and Build a New 7,721-Foot Runway North of Existing Runway 9L/27R (Combination of Alternatives B1b and C1)**



Alternative D1 includes redevelopment of an elevated Runway 9R/27L to 8,000 feet by 150 feet with EMAS and extending over the FEC Railway and U.S. Highway 1. Alternative D1 also includes construction of Runway 8/26 on the north airfield and decommissioning of Runway 13/31. Development of Runway 8/26 would displace multiple cargo and general aviation tenants located along the north side of the airfield. See **Exhibit ES-7, Alternative D1 – Redevelop and Extend Existing Runway 9R/27L to 8,000 Feet and Build a New 7,721-Foot Runway North of Existing Runway 9L/27R (Combination of Alternatives B1b and C1)**.

**ES.4.3.8 Alternative D2 – Build a New 6,001-Foot at Grade Runway with EMAS Located 340 Feet North of Existing South Runway and Build A 7,721 Foot At-Grade Runway Located 850 Feet North of Existing Runway 9L/27R (Combination of Alternatives B4 and C1)**



Alternative D2 includes redevelopment of Runway 9R/27L 340 feet north of its existing location to a length of 6,001 feet by 150 feet with EMAS on both runway ends. Alternative D2 also includes construction of Runway 8/26 on the north airfield and decommissioning of Runway 13/31. Development of Runway 8/26 would displace multiple cargo and general aviation tenants located along the north side of the airfield. See **Exhibit ES 8, Alternative D2 – Build a New 6,001-Foot at Grade Runway with EMAS Located 340 Feet North of Existing South Runway and Build A 7,721 Foot At-Grade Runway Located 850 Feet North of Existing Runway 9L/27R (Combination of Alternatives B4 and C1).**

## **ES.5 AFFECTED ENVIRONMENT**

The existing environmental conditions in and around the vicinity of FLL comprise the Affected Environment described in this EIS. The data collected was compiled from sources originating between 2004 and 2006. The Affected Environment includes areas that may be affected by implementation of the runway development alternatives and provides a baseline for determining the impacts and consequences resulting from implementation of any of the runway development alternatives relative to existing social, economic, and environmental settings. The Affected Environment includes the effects of past and present actions implemented or proposed by other entities within the vicinity of FLL.

### **ES.5.1 STUDY AREA AND DETAILED STUDY AREA**

For the purposes of this EIS, two study areas have been defined. The overall "Study Area" encompasses the communities surrounding FLL. The "Detailed Study Area" is a portion of the Study Area, including the current FLL land envelope and areas that may be physically disturbed with implementation of any of the runway development alternatives.

### **ES.5.1.1 Study Area**

The Study Area encompasses a geographical area broad enough to effectively evaluate the potential impacts that may result from implementation of the runway development alternatives. The Study Area boundary was developed using a composite of the projected future 60 Day-Night Average Sound Level (DNL) noise contours obtained from previous airport studies for years 2008, 2010, and 2020. A buffer area was then added to allow for potential future growth in the 60 DNL noise contour off the crosswind runway and to include the Seminole Indian Reservation. The Study Area boundary lines were squared off and follow roadways, where practical.

### **ES.5.1.2 Detailed Study Area**

The Detailed Study Area is a subset of the Study Area and was developed in order to focus the detailed discussion and analysis of construction and direct impacts resulting from implementation of the runway development alternatives. The Detailed Study Area boundary was developed using a composite of the footprints associated with runway development alternatives (including RSAs and RPZs) and the various alternative scenarios identified in Broward County's *Assessment of Airfield Development Alternatives*, dated September 29, 2003. The Detailed Study Area includes the entire airport property.

## **ES.6 ENVIRONMENTAL CONSEQUENCES**

The impacts resulting from implementation of all of the runway development alternatives and the No Action Alternative are disclosed in the Environmental Consequences chapter of this EIS. The impacts of each alternative are disclosed for project years 2012 and 2020. The FAA uses 2012 and 2020 as a basis for analysis because 2012 is the projected earliest implementation year of the Airport Sponsor's Proposed Project (Alternative B1c) and 2020, because it represents a future condition after full implementation of the Airport Sponsor's Proposed Project. The analysis of environmental impacts also compares the effects of the runway development alternatives to the No Action Alternative for the two respective project years.

The environmental consequences section forms the scientific and analytical basis for comparing the impacts of the runway development alternatives. It includes considerations of direct and indirect effects and their significance and possible conflicts between the alternatives and the objectives of Federal; regional; state; tribal; and local land use plans, policies and controls for the area concerned.

Based on the guidance provided by FAA Orders 5050.4B, *NEPA Implementing Instructions for Airport Actions*, and 1050.1E, *Environmental Impacts: Policy and Procedures*, the environmental impacts of the runway development alternatives have been evaluated within 19 general impact categories. Two of these categories - Farmlands and Wild and Scenic Rivers - have been determined to be neither applicable nor pertinent to this proposal due to the nature of the alternatives evaluated and lack of such resources within the Study Area and Detailed Study Area. A summary of the potential impacts resulting from implementation of the

alternatives considered is presented in Sections ES.6.1 through ES.6.17. A summary of the potential impacts resulting from implementation of the alternatives is also presented in **Table ES-1, Summary of Alternatives Including Potential Environmental Impacts and Benefit.**

### **ES.6.1 AIR QUALITY**

In both 2012 and 2020, the implementation of any of the runway development alternatives would result in a reduction in annual air pollutant emissions as compared to the No Action Alternative. (See Section 6.B, *Air Quality.*) This reduction in air emissions is due to a net reduction in aircraft operations on the ground during taxi and departure queue delay. Emissions from construction of any of the runway development alternatives combined with emissions from the construction of other planned development in the Fort Lauderdale area could potentially cause a temporary increase in air emissions.

### **ES.6.2 AIRPORT NOISE**

For the project year 2012, the population and number of residential housing units located within the 65+ DNL contour would increase for all alternatives as compared to the No Action Alternative. No noise-sensitive public facilities would be affected by noise levels at or above 65 DNL. The area of noise exposure, measured in square miles, for all but three of the runway development alternatives would increase in size as compared to the 2012 No Action Alternative; the exceptions are Alternatives B1c and B4, which would cause virtually no change in the contour. Alternative C1 would cause a decrease in the size of the noise exposure area compared to the 2012 No Action Alternative. (See Section 6.C, *Airport Noise.*)

By 2020, the area of noise exposure would not change with implementation of Alternatives B1, B1b, B1c, and D1; would decrease with implementation of Alternatives B4, C1, and D2; and would increase with implementation of Alternative B5 in comparison to the 2020 No Action Alternative. One noise-sensitive public facility would be impacted by noise levels at or above 65 DNL in 2020.

The supplemental Federal Interagency Committee on Noise (FICON) screening analysis conducted for each runway development alternative (See Section 6.C.1.1.9, *Significant Noise Analysis*) concluded that both a 1.5 dB increase and a 3 dB increase in noise would occur within the 65+ DNL noise contour for each of the runway development alternatives as compared to the 2012 No Action Alternative.

The noise screening analysis of potential impacts associated with all projected arrival and departure operations for 2012 between the altitudes of 3,000 feet and 10,000 feet Above Ground Level (AGL) (See Section 6.C.1.1.9, *Significant Noise Analysis*) indicates that none of the runway development alternatives would cause a significant (5 dB) change between the 45 and 60 DNL contour.

### **ES.6.3 COMPATIBLE LAND USES**

Implementation of Alternatives B1, B1b, B1c, B4, B5, D1, and D2 would require the acquisition of all or a portion of the Wyndham Fort Lauderdale Airport Hotel. No other off-airport property would be directly impacted by these alternatives. While disruption of the area and traffic access around the hotel site is expected with the potential acquisition of all or part of the hotel, the specific quantity of disruptions would not be known until further project planning and design is conducted. Impacts resulting from acquisition or relocation of all or a portion of the hotel would be mitigated in compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act*.

The existing comprehensive plans outlining land use and transportation policies for jurisdictions within the Study Area were reviewed to determine reasonable consistency with land use plans of public agencies responsible for development in the area. None of the alternatives under consideration requires land use or zoning changes and would be considered consistent with all local land use and comprehensive plans. (See Section 6.C.2, *Land Use Compatibility*.)

### **ES.6.4 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES**

None of the runway development alternatives would impact historic, architectural, archeological, or cultural resources listed on or eligible for listing on the National Register of Historic Places (NRHP).

### **ES.6.5 SECTION 4(f) PROPERTIES [RECODIFIED AS 49 U.S.C. 303(c)]**

None of the runway development alternatives would impact Section 4(f) properties within the Study Area or Detailed Study Area. The potential use of dredge material from Port Everglades could include the installation of a slurry pipe through West Lake Park to deliver dredge material to the airport. Broward County Parks and Recreation Division has informed the FAA that this portion of West Lake Park is not accessible to the public. Broward County has informed the FAA that impacts resulting from the installation and use of the slurry pipe would be temporary and limited to an early phase of the construction period. The slurry pipe would be removed upon completion of airport construction and would not result in permanent changes or alterations to the park.

### **ES.6.6 WATER QUALITY**

Increases in annual surface water quality pollutant loads discharged to receiving waterbodies would result from implementation of each of the runway development alternatives. (See Section 6.E.1, *Water Quality*.) It is anticipated that any direct or cumulative impacts to surface water or groundwater quality resulting from implementation of a runway development alternative would be negligible, as it would be mandatory for all projects to comply with existing and future federal and state water quality permit requirements. Best Management Practices (BMPs) in place at the airport are considered to be sufficient to ensure that concentrations of

pollutants of concern would not exceed applicable regulatory criteria. Based on the low background concentrations of the pollutants of concern, coupled with the relatively small volume of runoff to be generated by an improved airfield, impacts to the quality of surrounding waterbodies would be unlikely.

#### **ES.6.7 WETLANDS**

Because of the numerous safety, operational, and engineering design requirements proposed as part of the runway development alternatives, unavoidable impacts to wetlands would occur with implementation of each runway development alternative. (See Section 6.E.2, *Wetlands*.) Impacts to wetlands range from 0.13 acres with implementation of Alternative B4 to 21.87 acres with implementation of Alternative D1. These impacts would be mitigated in accordance with the U.S. Army Corps of Engineers Section 404 permit requirements.

#### **ES.6.8 FLOODPLAINS**

The 100-year floodplain crosses the airfield and would be encroached upon by all of the runway development alternatives. With the exception of the No Action Alternative, complete avoidance and minimization of new floodplain impacts resulting from implementation of any of the runway development alternatives is not practicable due to the existing airfield geometry and presence of major transportation corridors and surrounding development. The impacts resulting from construction of airfield improvements and tenant relocations would not be significant. It is not anticipated that implementation of any of the runway development alternatives would result in a loss of natural or beneficial floodplain values. Any loss of floodplain storage would be compensated for through design of the airfield stormwater management system.

#### **ES.6.9 COASTAL RESOURCES**

There are no coastal resources, including coral reefs, located within the Detailed Study Area or the larger Study Area that extends over the Atlantic Ocean. No impacts to coastal resources, including coral reefs, would result from implementation of any of the runway development alternatives.

#### **ES.6.10 FISH, WILDLIFE, AND PLANTS**

None of the runway development alternatives are likely to adversely affect Federally-listed or state-listed endangered or threatened species, or species of special concern.

##### **ES.6.10.1 Federally-Listed Species**

###### **ES.6.10.1.1 Smalltooth Sawfish**

Implementation of Alternatives B1, B1b, B1c, B5, and D1 would result in a "May affect but not likely to adversely affect" determination for the smalltooth sawfish. Implementation of Alternatives A, B4, C1, and D2 would result in a "No effect" determination for the smalltooth sawfish.

#### **ES.6.10.1.2 West Indian Manatee**

Implementation of Alternatives B1, B1b, B1c, B4, B5, D1, and D2 would result in a determination of "May affect, but not likely to adversely affect" for the West Indian manatee. No further coordination with the USFWS would be required. Implementation of Alternatives A and C1 would result in a "No effect" determination for the West Indian manatee.

#### **ES.6.10.1.3 Johnson's Seagrass**

Implementation of Alternative B5 would result in a determination of "May affect, but not likely to adversely affect" for Johnson's seagrass. Implementation of Alternatives A, B1, B1b, B1c, B4, C1, D1, and D2 would result in a "No effect" determination for Johnson's seagrass.

### **ES.6.10.2 State-Listed Species**

#### **ES.6.10.2.1 Florida Burrowing Owl**

Suitable nesting habitat for the Florida burrowing owl has been historically reported on airport property, but no burrowing owl activity on-airport was observed during field surveys conducted for this EIS in November 2004. Implementation of any of the runway development alternatives is not likely to result in impacts to the Florida burrowing owl. Field surveys would be conducted on-airport within the appropriate habitat to determine the presence or absence of this species no less than 90 days prior to beginning construction to ensure that the species has not recurred.

#### **ES.6.10.3 Essential Fish Habitat (EFH)**

The FAA has determined there would be no significant impacts to Essential Fish Habitat (EFH) resulting from implementation of any of the runway development alternatives. This determination is based on preliminary project design, and the minimal short-term and permanent impacts associated with the installation of light tower foundations, utility cables, and access roads required for the proposed runway approach light configurations associated with each runway development alternative.

### **ES.6.11 HAZARDOUS WASTE**

With the forecast increase in aircraft operations, minimal impacts on the storage, release, and generation of hazardous wastes; existing petroleum-impacted sites and leaking underground storage tanks (LUSTs); fuel storage tanks and fuel facilities; and dredged and fill materials would with implementation of any of the alternatives, including the No Action Alternative. Construction of any of the runway development alternatives would not result in a significant increase in the amount of hazardous waste generated and would have no impact on the available capacity of existing waste disposal facilities. (See Section 6.G.1, *Hazardous Materials*.)

## **ES.6.12 SOLID WASTE**

None of the alternatives, including the No Action Alternative, would result in a significant increase in solid waste generation and would have no impact on the available capacity of existing waste management and recycling facilities. (See Section 6.G.2, *Solid Waste*.)

## **ES.6.13 SOCIOECONOMIC, ENVIRONMENTAL JUSTICE, AND CHILDRENS' HEALTH AND SAFETY**

### **ES.6.13.1 Socioeconomic Impacts**

No residential acquisition or relocation would be required for the implementation of any of the runway development alternatives.

The implementation of Alternatives B1, B1b, B1c, B5, and D1 would require the acquisition of two adjacent businesses, the Hilton Fort-Lauderdale Airport Hotel and the Dania Boat Sales; both are located on Griffin Road.

The implementation of Alternatives B4 and D2 would require the partial acquisition of the Dania Boat Sales.

No off-airport business acquisition or relocation would be required for the implementation of Alternative C1. The implementation of Alternatives C1, D1, and D2 also would require the relocation of the on-airport tenants located on the north airfield.

None of the runway development alternatives would cause a significant disruption of local traffic patterns, and no substantial loss in community tax base would occur as a result of implementation of any of the runway development alternatives. (See Section 6.H.1.1, *Socioeconomic Impacts*.)

### **ES.6.13.2 Environmental Justice**

In 2012 all of the runway development alternatives, except Alternatives B4 and D2, would have a percentage of minority population less than or equal to that of the No Action Alternative because the noise contours do not significantly increase in size or geographical area covered. Alternatives B4 and D2 each would have a 0.7 percent increase in minority population over that of the No Action Alternative (the 2012 No Action Alternative minority population would be 25.0 percent; both Alternatives B4 and D2 would have a minority population of 25.7 percent). The minority populations exposed to aircraft noise would not be significantly greater when compared to the overall population in the Study Area.

The percentage of low-income population within the 65+ DNL noise contour would remain relatively the same if any of the runway development alternatives were constructed. The minority and low-income populations surrounding the airport would not disproportionately experience impacts greater in magnitude, or greater in frequency, from aircraft activity and noise than those experienced by the majority population in the airport environs. (See Section 6.H.1.2, *Environmental Justice*.)

### **ES.6.13.3 Children's Environmental Health and Safety Risks**

Based on the analysis detailed in Chapter Six, Section 6.B, *Air Quality*, the implementation of any of the runway development alternatives would comply with all Federal and state air quality regulations and guidelines, and would not have the potential to cause significant adverse air quality impacts in Broward County. Based on the analyses detailed in Chapter Six, Section 6.E-1, *Water Quality*, none of the alternatives would result in the release of harmful agents into surface or groundwater resources above levels permitted by state and Federal regulations. No regulatory agencies identified or commented on issues related to children's health and safety.

Implementation of any of the runway development alternatives would not result in the release of or exposure to significant levels of harmful agents in the water, air, or soil that would affect children's health or safety. (See Section 6.H.1.3, *Children's Environmental Health and Safety Risks*.)

## **ES.6.14 SECONDARY (INDUCED) AND INFRASTRUCTURE**

### **ES.6.14.1 Surface Transportation**

The surface transportation analysis developed for this EIS determined that the Level of Service (LOS) of the existing roadway system around the airport fails under existing (2005) conditions. Local roadway projects are needed to improve the LOS regardless of whether any airport development projects are implemented. None of the runway development alternatives would significantly alter the existing local roadway network, nor would they affect traffic volumes to further degrade the LOS of the roadway system. (See Section 6.H.2.1, *Surface Transportation*.)

### **ES.6.14.2 Economic Impacts**

The number of temporary construction jobs and the amount of income generated by those jobs would vary by runway development alternative. New jobs across all industries would result from the construction of improvements at FLL. It is assumed that the jobs would be filled by local workers, unless the necessary workforce is not available. The results of the analysis indicate that the Final Demand Employment associated with the construction spending for each runway development alternative would range from 9,700 to 22,400 jobs for all industries in the region. (See Section 6.H.2.2, *Economic Impacts*.)

### **ES.6.14.3 Public Services**

The implementation of any of the proposed runway development alternatives would not affect the accessibility or circulation of public service vehicles to the airport or surrounding communities. This would include emergency response vehicles, school buses, and public transit. The Level of Service (LOS) of the existing roadway system around the airport fails under existing conditions, therefore local roadway projects are needed to improve the LOS regardless of whether any airport development projects are implemented.

The implementation of any of the runway development alternatives would not result in residential acquisition or relocation or significant commercial/business acquisition or relocation therefore the level of public services would not change. (See Section 6.H.2.3, *Public Services*.)

## **ES.6.15 LIGHT EMISSIONS AND VISUAL IMPACTS**

### **ES.6.15.1 Light Emissions**

Many of the residential areas around FLL are currently shielded from airport light emissions due to natural and man-made buffers and existing compatible land uses around the airport. No significant light emission impacts would result from implementation of any of the runway development alternatives. (See Section 6.H.3.1, *Light Emissions*.)

### **ES.6.15.2 Visual Impacts**

None of the runway development alternatives would create a substantial impact on the view as seen from parcels adjacent to the airport. The views within the airport vicinity are currently characterized by the existing network of highways, terminal buildings, runways, taxiways, and ancillary transportation infrastructure. These view characteristics should remain unchanged with implementation of any of the runway development alternatives. No significant visual impacts would occur with implementation of the runway development alternatives. (See Section 6.H.3.2, *Visual Impacts*.)

## **ES.6.16 NATURAL RESOURCES AND ENERGY SUPPLY**

No irreversible or irretrievable commitments of natural resources are anticipated to result from construction of any of the runway development alternatives. There would be no depletion of materials in short supply or substantial irreversible changes to the natural or cultural environment. Evaluation of the future energy and fuel demands does not indicate the use or consumption of energy or fuel sources that would be in short supply in the vicinity of FLL. Each of the runway development alternatives could increase the demand for utility power while decreasing the demand for fuel.

In consideration of improvements outlined in *FPL Ten-Year Power Plant Site Plan 2005-2014* (See Chapter Five, *Affected Environment*, Section 5.H.4.1, *Energy Sources*), the FAA would anticipate that FPL could accommodate the increased demand for electricity to the airport through 2020. The Gulfstream Natural Gas Pipeline, operated by the Peoples Gas Company since 2002, is assumed to be capable of providing ample natural gas to FLL to meet the anticipated demand through 2020. The increase in future energy and fuel demand resulting from any of the alternatives would not adversely affect future power and fuel supplies or the supply of natural resources. (See Section 6.H.4, *Natural Resources and Energy Supply*.)

### **ES.6.17 CONSTRUCTION IMPACTS**

Construction of all of the runway development alternatives would not result in long-term adverse impacts. Temporary impacts resulting from construction, including equipment noise, generation of fugitive dust, stormwater discharges, and truck traffic, would cease once construction is complete. Construction of any of the runway development alternatives would be conducted in accordance with the provisions of Advisory Circular 150/5370-10B, *Standards for Specifying Construction of Airports, Change 13*, and all state and local construction standards. Existing and planned BMPS would be implemented to minimize impacts on air and water quality during construction. (See Section 6.H.5, *Construction Impacts*.)

### **ES.7 CUMULATIVE IMPACTS**

Chapter Seven, *Cumulative Impacts*, discloses the impacts of the runway development alternatives under consideration at FLL in combination with past, present, and reasonably foreseeable future actions at FLL, Port Everglades, and within the FLL environs. These notable actions have been implemented, are under current planning, or are anticipated in the near future to address transportation and infrastructure needs. When grouped together, these independent actions have a cumulative effect on resources, land use patterns, and the character of the Fort Lauderdale community.

For the actions proposed in this EIS along with past, present, and reasonably foreseeable projects, cumulative impacts may occur in the areas of: air quality; noise; compatible land use; water quality and water resources; fish, wildlife, plants, and habitat; hazardous and solid wastes; social and community resources; light emissions and visual impacts; natural resources and energy supply; construction impacts; and sustainable design and development. The level of cumulative impact anticipated to occur within these categories is not significant because of the types of projects proposed, the extent of the built environment in which they will occur, and the options considered or implemented to mitigate for unavoidable impacts.

### **ES.8 IDENTIFICATION OF FAA'S PREFERRED ALTERNATIVE**

CEQ guidance requires all Federal agencies to identify a preferred alternative. According to FAA Order 5050.4B Paragraph 1007e.(7), the approving FAA official selects the preferred alternative after reviewing each alternative's ability to fulfill the agency's mission while considering their economic and environmental impacts, and technical factors.

As discussed in Chapter Three, *Purpose and Need*, all of the runway development alternatives would meet the project purposes in terms of meeting the FAA's statutory charter, national needs, priorities, and OEP mission.

All of the runway development alternatives would meet the identified project needs, but with varying levels in terms of providing sufficient airfield capacity to the extent practicable, accommodate existing and projected air carrier demand at an acceptable level of delay; and provide an enhanced and balanced airfield and adequate terminal gate facilities.

In identifying the FAA's Preferred Alternative, the FAA also considered the degree to which the alternatives satisfy the Airport Sponsor's goals and objectives (see Section ES.3.1, *Airport Sponsor's Identified Goals and Objectives*).

**Airport Sponsor Concerns:** The Airport Sponsor expressed significant concern with regard to alternatives that include the development of a north runway.<sup>15</sup> Alternatives C1, D1, and D2 include the development of a new runway north and parallel to existing Runway 9L/27R. All of these alternatives would result in substantial tenant relocations from the north airfield, could limit future tenant expansion capabilities, and could limit the potential for future on-airport development within the existing airport envelope.<sup>16</sup> A large portion of the costs for tenant relocation would be the responsibility of the Airport Sponsor.<sup>17</sup> Broward County, the Airport Sponsor, has indicated that based on their economic impact analysis, which includes relocating the north airfield tenants, it is not willing to pursue a north runway development alternative.<sup>18</sup>

**FAA's Preferred Alternative:** In selecting its Preferred Alternative, the FAA considered each of the proposed runway development alternatives. See Section ES.4.3, *Alternatives Assessed for Environmental Impacts*, to review the full description of each of the runway development alternatives.

- Alternative A (No Action) does not meet the identified purpose and need nor does it address the Airport Sponsor's goals and objectives.
- Alternative B1 meets the identified purpose and need; however the use of declared distance would be necessary to obtain a standard runway safety area (RSA), and a portion of the RSA for Runway 9R/27 would be located in the Dania Cut-Off Canal. Although this alternative meets the identified purpose and need, another alternative also meets the purpose and need without the use of declared distance or RSA encroachment into the Dania Cut-Off Canal.

<sup>15</sup> Letter to Mr. Dean Stringer, FAA Orlando Airports District Office, from Mr. Kent G. George, A.A.E., Director of Aviation Fort Lauderdale-Hollywood International Airport. Dated: December 7, 2007.

<sup>16</sup> The discussion of tenant relations is provided in this EIS in Appendix E, *Airfield Planning, Design, & Constructability Review*, Section E.1.6, *Facility Impacts*.

<sup>17</sup> Alternative costs including facility relocation costs are included in Chapter Four, *Alternatives*, Section 4.4, *Projected Costs*.

<sup>18</sup> Letter to Mr. Dean Stringer, FAA Orlando Airports District Office, from Mr. Kent G. George, A.A.E., Director of Aviation Fort Lauderdale-Hollywood International Airport. Dated: December 7, 2007.

- Alternative B1c (Airport Sponsor's Proposed Project) considers the implementation of the operational noise abatement actions described in the County's Airfield Development Program Objective Statement (October 26, 2004),<sup>19</sup> which would limit the use of Runway 9L/27R in 2012.<sup>20</sup>
- Alternative B4, the shortest runway development alternative at 6,001 feet, would provide adequate capacity and delay reduction in the short-term (2012). However, Alternative B4 does not meet the Airport Sponsor's objective of closing Runway 13/31 nor does it effectively address air carrier capacity. Further, given the length of the proposed runway in Alternative B4, pilots may opt not to use this runway to avoid taking a payload penalty<sup>21</sup> because of the operating conditions of the runway (temperature, type of aircraft, destination), then a higher percentage of aircraft departures would be assigned to the longer Runway 9L/27R. Even a conservative pilot refusal rate of 80 departures per day (less than 10 percent) would result in delay over 10 minutes by 2020 according to the sensitivity analysis<sup>22</sup> provided in Appendix F, *Net Benefits Analysis* (Section F.6.4, *Alternative B4 Sensitivity Analysis*). Alternative B4 would provide the least long-term capacity when compared to all of the runway development alternatives.
- With Alternatives C1, D1, and D2, the FAA does not have a willing Airport Sponsor due to issues associated with developing a new runway on the north airfield. The Airport Sponsor is concerned with the amount of tenant relocations that would be necessary and the decrease in on-airport land that could be used for future aviation related-development, and the resulting economic impact to the airport.
- Alternative B5 would result in more noise impacts in 2012 and 2020 than any of the other runway development alternatives. Wetlands impacts would be greater than any of the other runway development alternatives except for Alternative D1.

<sup>19</sup> Letter to FAA Manager, Orlando Airports District Office from FLL Director of Aviation Broward County Aviation Department, dated November 1, 2004. "This responds to your letter dated December 24, 2003 requesting information necessary for the preparation of the revised Environmental Impact Statement (EIS) for the proposed extension of Runway 9R/27L at the Fort Lauderdale-Hollywood International Airport."

<sup>20</sup> MEMORANDUM from Max Wolfe/Eric Bernhardt, Leigh Fisher Associates (now Jacobs Consultancy), to Virginia Lane, AICP, Environmental Specialist, Federal Aviation Administration. Subject: Sponsor's Proposed Project Operational Assumptions. Dated: August 22, 2006/Revised: August 24, 2006.

<sup>21</sup> Payload is defined as the revenue-producing weight that an aircraft can carry; it includes the total weight of passengers and cargo. A payload penalty is incurred when passengers and/or cargo have to be removed from a flight because of the permitted takeoff weight of an aircraft which is based on the runway length, airport elevation, and temperature.

<sup>22</sup> During the EIS process Broward County raised concerns with the length of the runway in Alternative B4 and the potential necessity for payload penalties on aircraft operations. Therefore, the FAA conducted a sensitivity analysis on Alternative B4 to determine the impact estimated refusals, caused by potential payload penalties, would have on delay. The FAA also received comments on the Draft EIS from several airlines expressing this concern with Alternative B4.

Alternative B1b is the FAA's Preferred Alternative. It meets the FAA's statutory charter, the needs of the national airspace system, and the FAA's objectives in the OEP. In making its selection, the FAA has considered that the redevelopment and expansion of Runway 9R/27L in Alternative B1b would satisfy the Airport Sponsor's goals and objectives.

While Alternative B1b would address the Airport Sponsor's goals and objectives, it would not limit the use of, and operations on the new south runway. Alternative B1b would also address the Airport Sponsor's concerns with regard to future on-airport growth. The FAA considered the Airport Sponsor's concerns in selecting its Preferred Alternative.<sup>23</sup> The FAA selection of Alternative B1b does not preclude Broward County from preparing a Part 150 Study to reevaluate runway use procedures in the future.

## **ES.9 MITIGATION**

This EIS identified few potential impacts associated with implementation of any of the runway development alternatives. Mitigation possibilities (those actions considered to avoid, minimize, rectify, reduce, or eliminate potential impacts resulting from implementation of any of the runway development alternatives) are presented for only those categories – noise, compatible land use, and wetlands – where potential impacts were identified. Mitigation and other conditions established in this EIS, or during its review, are subsequently committed to by the FAA in its Record of Decision. These mitigation measures would be implemented by the Airport Sponsor. The FAA would ensure implementation of such mitigation measure through special conditions, funding agreements, contract specifications, directives, other review or implementation procedures and other appropriate follow-up actions in accordance with 40 CFR 1505.3. (See Chapter Six, Section 6.J, *Conceptual Mitigation Measures Considered in the Draft EIS*.)

<sup>23</sup> FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, 1202. FAA'S PREFERRED ALTERNATIVE. The responsible FAA official must ensure the FEIS identifies FAA's preferred alternative (paragraph 1007.e.(7)), unless a law forbids FAA from doing so (40 CFR 1502.14(e)). If the approving FAA official intends to identify a preferred alternative differing from the sponsor's proposed action, the official should notify the sponsor as early as possible. The approving FAA official should then follow the steps in paragraph 801 of this Order.

FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, 801. IF FAA'S PREFERRED ALTERNATIVE DIFFERS FROM THE SPONSOR'S PROPOSED ACTION. b. Notify the airport sponsor. The approving FAA official should notify the airport sponsor as soon as the approving FAA official identifies a preferred alternative differing from the sponsor's proposed action. Here, the airport sponsor and the responsible FAA official should try to reach consensus on the alternative FAA will select as its preferred alternative. Because the airport sponsor (not FAA) decides whether to carry out the preferred alternative for airport development, the sponsor may make one of the following choices:

- (1) Concur in and implement FAA's preferred alternative.
- (2) Reject FAA's preferred alternative.
- (3) Propose an alternative not previously presented.
- (4) Take no action to address the purpose and need.

### **ES.9.1 NOISE AND COMPATIBLE LAND USE IMPACTS**

The FAA reviewed Broward County's mitigation principles (as summarized in Chapter Eight, Section 8.6.2.1, *Broward County Proposed Noise Mitigation Principles*) and determined that four of the proposed principles were appropriate for recommendation in the EIS to address the noise impacts to incompatible land use within the 2020 65 DNL noise contour of the FAA's Preferred Alternative.

- Each of the mitigation measures will address a neighborhood/subdivision area as a whole to ensure, to the extent practicable, that community cohesion will be maintained when the mitigation strategies are applied; thus, mitigation areas may extend beyond the 65 DNL noise contour to follow natural geographic boundaries, street patterns, and contiguous neighborhood boundaries
- Acquisition of mobile home units and the relocation of residents in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24) with the FAA's recommendation that the future use of the acquired property be controlled by recorded restrictive covenants
- Sound insulation of eligible single-family and multi-family units with the FAA's recommendation that an avigation easement be acquired
- Purchase guarantee/sales assistance (with sound insulation) for eligible single-family and multi-family units with the FAA's recommendation that an avigation easement be acquired

The FAA has identified those properties that may be eligible for participation in a land use mitigation measure. Broward County's responsibility is to decide how to apply the mitigation to eligible properties. The mitigation areas and the mitigation measures identified in this EIS will be part of the FAA Record of Decision. The Record of the Decision will include conditions requiring the Airport Sponsor to implement the noise mitigation measures addressing the impacts resulting from the implementation of the FAA's Preferred Alternative. The participation of the individual home owner and/or property owner in any of the recommended mitigation measures, however, will be voluntary.

**Table ES.-2, *Incompatible Land Uses Potentially Eligible for EIS Noise Mitigation Measures - 2020 FAA's Preferred Alternative***, indicates the number of housing units, population, and noise-sensitive public facilities located in each noise exposure contour range; the 65-70 DNL, 70-75 DNL, 75+ DNL. There are an estimated 1,051 residential housing units located within the 65+ DNL noise contour. Of the 1,051 potentially impacted housing units, 1,000 are located within the 65 and 70 DNL noise contour and 51 housing units are located in the 70+ DNL noise contour. No churches, schools, libraries, nursing homes, or hospitals are impacted by noise levels at or above 65 DNL. See **Exhibit ES-9, *FAA's Preferred Alternative Noise Exposure Contour (Alternative B1b)***.

Areas of incompatible land use located within the 60 DNL noise contour have been identified as potentially eligible for participation in a land use mitigation measure to ensure that community cohesion will be maintained. These areas follow natural

geographic boundaries, street patterns, and contiguous neighborhood boundaries to the areas of incompatible land use located within the 65 DNL noise contour. There are an estimated 1,023 residential units located in areas of incompatible land use that are contiguous to and outside of the 65 DNL noise contour.

**Table ES-2**

**INCOMPATIBLE LAND USES POTENTIALLY ELIGIBLE FOR EIS NOISE  
MITIGATION MEASURES - 2020 FAA'S PREFERRED ALTERNATIVE  
Fort Lauderdale-Hollywood International Airport**

Type of Facility	65-70 DNL	70-75 DNL	75+ DNL	TOTAL 65+ DNL	Contiguous Residential Areas Outside 65 DNL	TOTAL Units Potentially Eligible
<b>Residential Housing Unit</b>						
Single-Family	550	21	0	571	527	1,098
Multi-Family	360	30	0	390	218	608
Mobile Home	90	0	0	90	278	368
<b>Total Housing Units</b>	<b>1,000</b>	<b>51</b>	<b>0</b>	<b>1,051</b>	<b>1,023</b>	<b>2,074</b>
<b>Population</b>						
Single-family	1,298	50	0	1,348	1,258	2,606
Multi-family	940	77	0	1,017	582	1,599
Mobile Home	107	0	0	107	344	451
<b>Total Population</b>	<b>2,345</b>	<b>127</b>	<b>0</b>	<b>2,472</b>	<b>2,184</b>	<b>4,656</b>
<b>Noise-Sensitive Public Facility</b>						
Churches	0	0	0	0	0	0
Library	0	0	0	0	0	0
Performing Arts Centers	0	0	0	0	0	0
Nursing Homes	0	0	0	0	0	0
Schools	0	0	0	0	0	0

Note: The information contained in this table is the same as Table 6.C.1-44 in Chapter Six, and in Table 8-2 in Chapter Eight.

Residential housing units and population counts are based on 2000 Traffic Analysis Zone (TAZ) data from the Broward County Metropolitan Planning Organization.

Source: Landrum & Brown, 2007. [Contour: FLL\_2020B1b]

For further discussion about the FAA-recommended mitigation measures, the identified areas of incompatible land use, and the associated mitigation costs see Chapter Eight, Section 8.6.2, *Mitigation of Noise Impacts to Incompatible Land Use*.

## **ES.9.2 WETLAND IMPACTS**

The direct impacts to wetlands for Alternative B1b are 15.41 acres.<sup>24</sup> The FAA has consulted with the U.S. Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD) regarding these wetland impacts and the

<sup>24</sup> The airfield geometry, NAVAIDS, and potential facility impacts for Alternative B1b and Alternative B1c (Airport Sponsor's Proposed Project) are identical. Therefore, the wetland impacts are the same for both alternatives, and the *Conceptual Wetland Mitigation Plan* for the Airport Sponsor's Proposed Project (Alternative B1c) would be sufficient for Alternative B1b.

*Airport Sponsor's Conceptual Wetland Mitigation Plan.*<sup>25</sup> Based on the availability of mitigation credits that would be available from West Lake Park and based on the USACE and SFWMD comments received to date, wetland impacts would be mitigated for Alternative B1b with the implementation of the *Airport Sponsor's Conceptual Wetland Mitigation Plan*. (See Chapter Eight, *FAA's Preferred Alternative*, Section 8.5, *Wetlands*.)

Broward County has permits from the SFWMD and the USACE that allow for habitat restoration and enhancement within West Lake Park. The Airport Sponsor is responsible for continuing the mitigation process throughout the applicable permitting process mandated by these regulatory agencies. Potential further avoidance and minimization opportunities and wetland mitigation would be identified during the permitting process for the FAA's Preferred Alternative. The wetland mitigation for the FAA's Preferred Alternative will include all practicable measures to minimize unavoidable harm to wetlands. (See Chapter Eight, Section 8.6.3, *Wetlands*, for a discussion of the *Conceptual Mitigation Plan* for the FAA's Preferred Alternative.)

## **ES.10 IMPACTS TO ENDANGERED AND THREATENED SPECIES**

The EIS analysis identified potential impacts to three Federally-listed species and one state-listed species of concern for the FAA's Preferred Alternative. The Federally-listed species of concern are the smalltooth sawfish, the West Indian manatee, and the wood stork. The state-listed species of concern is the Florida burrowing owl. (See Section 6.F.1, *Fish, Wildlife, and Plants*.)

The FAA determined that no significant adverse affect would occur to any Federally-listed or state-listed species for the FAA's Preferred Alternative. The U.S. Fish and Wildlife Service (USFWS) has concurred with the FAA's determination of "may affect/not likely to adversely affect" for the West Indian manatee and the wood stork.<sup>26</sup> Similarly, the National Marine Fisheries Service (NMFS) has concurred with the FAA's determination of "may affect/not likely to adversely affect" for the smalltooth sawfish.<sup>27</sup> Regarding state-listed species, the Airport Sponsor will be required to conduct a survey for the Burrowing Owl prior to construction.

<sup>25</sup> See Appendix M.3, *Conceptual Wetland Mitigation Plan*, Memorandum to: FLL EIS Administrative Record, from: Mike Tust, through: Sandra Walters. Subject: Summary of January 31, 2008 telephone conference with Leah Oberlin of the U.S. Army Corps of Engineers (USACE) to discuss analysis and approach of The Federal Aviation Administration's (FAA's) 'Draft' Conceptual Wetland Mitigation Plan for the Fort Lauderdale-Hollywood International Airport (FLL) Proposed Runway Expansion Environmental Impact Statement (EIS). Dated: January 31, 2008.

<sup>26</sup> Letter from Allen D. Webb for Paul Souza, Field Supervisor, South Florida Ecological Services Office, U.S. Fish and Wildlife Service, to Virginia Lane, FAA Orlando Airports District Office, dated January 31, 2008.

<sup>27</sup> Letter from Roy E. Crabtree, PhD., Regional Administrator, United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, to Virginia Lane, FAA Orlando Airports District Office, dated March 24, 2008.

**Essential Fish Habitat (EFH):** The FAA has determined there would be no significant adverse impact to EFH with the implementation of the FAA's Preferred Alternative. The NMFS provided the FAA with EFH conservation recommendations based on the requirements of Section 305(b)(4)(A) of the Magnuson-Stevens Act.<sup>28</sup> The NMFS EFH conservation recommendations were fully considered in the development of the *Airport Sponsor's Conceptual Wetland Mitigation Plan*.<sup>29, 30</sup>

## **ES.11 NEXT STEPS**

This final EIS has been published and made available for public and agency review and comment. The 30-day comment period begins on June 27, 2008 with the publication of the Federal Register Notice of Availability of the *Final Environmental Impact Statement for the Development and Expansion of Runway 9R/27L and Other Associated Airport Projects at Fort Lauderdale-Hollywood International Airport, Broward County, Florida*. The 30-day comment period ends on July 28, 2008.

The FAA will review all comments received during the comment period and incorporate or revise information, as it deems necessary, in the preparation of its Record of Decision (ROD). The FAA's responses to comments received on the final EIS will be included in the ROD. The ROD may clarify and respond to issues raised on the final EIS. The FAA will then publish the ROD for public and agency review.

The ROD will complete the FAA's thorough and objective environmental decision-making process including FAA's public disclosure and review by the FAA decisionmaker of the analysis of impacts described in this EIS. The ROD will be prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) [42 U.S.C. Section 4321, et seq.], the implementing regulations of the Council on Environmental Quality (CEQ) [40 CFR Parts 1500-1508] and FAA directives [Order 1050.1E, *Environmental Impacts: Policies and Procedures* and Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*]. The ROD will demonstrate and document the FAA's compliance with the procedural and substantive requirements and environmental, programmatic, and related statutes and regulations that apply to FAA decisions and actions on proposed airport projects.

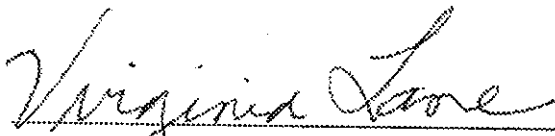
<sup>28</sup> Letter to Virginia, FAA Orlando Airports District Office, from Pam Weller for Miles M. Croom, Assistant Regional Administrator, Habitat Conservation Division, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. Dated: May 17, 2007.

<sup>29</sup> Letter to Ms. Jocelyn Karazsia, National Marine Fisheries Service, from Virginia Lane, FAA Orlando Airport District Office, Re: Fort Lauderdale-Hollywood International Airport (FLL) Draft Environmental Impact Statement (Draft EIS), Essential Fish Habitat (EFH) Assessment Additional Information. Dated: February 5, 2008.

<sup>30</sup> *Direct, Secondary, and Cumulative Effects on Essential Fish Habitat, Proposed Expansion of Runway 9R-27L Fort Lauderdale-Hollywood International Airport Environmental Impact Statement*. U.S. Department of Transportation, Federal Aviation Administration. Prepared for National Marine Fisheries Service. Dated: February 5, 2008. Provided in Appendix M.1 of this EIS.

## **Approval Declaration**

Submitted by Responsible Federal Official:

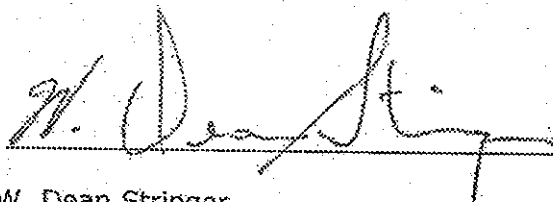


Virginia Lane  
Environmental Program Specialist  
Orlando Airports District Office  
Southern Region

6/17/08

Date

After careful and thorough consideration of the facts contained herein and following consideration of the views of those Federal agencies having jurisdiction by law or special expertise with respect to the environmental impacts described, the undersigned finds that the proposed Federal Action are consistent with existing national environmental policies and objectives as set forth in Section 101(a) of the National Environmental Policy Act of 1969.



W. Dean Stringer  
Manager  
Orlando Airports District Office  
Southern Region

6/17/08

Date

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**Table ES-1**  
**SUMMARY OF ALTERNATIVES INCLUDING POTENTIAL ENVIRONMENTAL IMPACTS AND BENEFIT**  
**Port Lauderdale-Hollywood International Airport**

**FOOTNOTES**

- 1/ Maximum capacity presents a condition of balanced arrival and departure demand, arrival peak, and departure peak. By comparison, Practical capacity takes into consideration actual demand able to use available runways according to the aircraft types and runway length characteristics of each alternative. The practical capacity is lower than the maximum capacity for those alternatives that have shorter runways.
- 2/ VFR: Visual Flight Rules - Rules and procedures specified in Federal Aviation Regulations Part 91 for aircraft operations under visual conditions (i.e., "good" weather).
- 3/ IFR: Instrument Flight Rules - Rules and procedures specified in Federal Aviation Regulations Part 91 for aircraft operations during flight in Instrument Meteorological Conditions (i.e., "poor" weather).
- 4/ Average minutes of delay per operation was computed using a queue modeling methodology. Demand, defined in terms of counts of arrivals and departures in five-minute intervals, was modeled against the estimated capacity of each alternative in good (VFR), and poor (IFR) weather conditions. Both east and west operating flows were analyzed.
- 5/ Benefit over No-Action was computed by subtracting each alternative's delay from the delay resulting from the No Action Alternative.
- 6/ Alternatives D1 and D2 would not be fully operational by 2012. In 2012 the noise impacts for Alternative D1 would be the same as Alternative B1b; and for Alternative D2 the noise impacts would be the same as Alternative B4.
- 7/ The estimated land acquisition includes the full acquisition of the Hilton (former Wyndham) Hotel and the Danis Boat Sales. It does not consider the potential acquisition of the marina.
- 8/ This analysis quantifies the annual costs and benefits of each alternative through the year 2030. The net present value of costs and benefits was calculated and is expressed in 2007 dollars. Net present value of benefits divided by the net present value of costs yields a benefit/cost ratio that can be used to compare the relative benefit of each alternative. A ratio greater than one (1.0) indicates that the benefits yielded by the project outweigh the costs of developing the project. A ratio of 2.0, for example, indicates that the benefits are twice as large as the costs. The higher the ratio, the greater the benefits provided by the project.
- 9/ Ratio for 2006 - 2020 evaluation period indicates the project's ability to provide a positive return on investment over a shorter period of time (from the end of construction to 2020) while the 2030 ratio (evaluation period of 2006 - 2030) represents the benefits accrued over the life of the project (from the end of construction to 2030). These ratios provide a comparison of projects that differ significantly in terms of cost, time to be fully implemented, benefits in the near term, and ability to deliver benefits in the long term.
- 10/ NAAQS: National Ambient Air Quality Standards, established by the U.S. Environmental Protection Agency
- 11/ Includes single-family homes, multi-family units, and mobile homes.
- 12/ Includes schools, churches, nursing homes, and libraries
- 13/ For the 2012 scenario, Alternatives B1b and B1c (the Airport Sponsor's Proposed Project) represent the same condition with the exception that Alternative B1c includes implementation of Broward County Aviation Department's existing voluntary noise abatement program. All other alternatives represent unabated operating conditions. By 2020, the County's existing voluntary noise abatement program would no longer be in effect. The FAA's proposal could include operational abatement measures.
- 14/ For Land Use Compatibility, the runway development alternatives were examined to
- 15/ FOMP: Florida Coastal Management Program

Source: Landrum & Brown, 2008